

Two new species of the genus *Ctenognophos* Prout (Geometridae, Ennominae) from the Himalayas

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Abstract *Ctenognophos fuscobrunnea* sp. n. from India and Nepal, and *C. yoshimotorum* sp. n. from Kashmir are described and illustrated. *C. paerlita* (Butler) is first recorded from Nepal.

Key words *Ctenognophos*, new species, Geometridae, Ennominae, India, Nepal, Kashmir.

Introduction

In this paper two new species of the genus *Ctenognophos* Prout will be described from the Himalayas. They are closely related to *C. eolaria* (Guenée), the type species of the genus. One of them was collected from India and Nepal, and the other from Kashmir. In my previous papers (Sato, 1994, 1998, 2000), the following four species were recorded from Nepal as members of *Ctenognophos*: *cuprearia* (Moore), *zelotypus* Inoue, *eolaria* (Guenée), *obtectaria* (Walker). Besides *C. methoria* Prout was recorded from E. Nepal by Inoue (1982: 186). Here, *C. paerlita* (Butler) will be added to the fauna of Nepal.

The following acronyms are used to indicate the location of the specimens. BMNH: The Natural History Museum, London, UK. NIAES: Insect Systematics Laboratory, Natural Resources Inventory Center, National Institute of Agro-Environmental Sciences, Tsukuba, Japan. NSMT: National Science Museum, Tokyo, Japan. ZSM: Zoologische Staatssammlung, Munich, Germany.

Ctenognophos fuscobrunnea sp. nov. (Figs 4–9)

Catascia eolaria ab. *fuscobrunnea* Warren, 1896: 318.

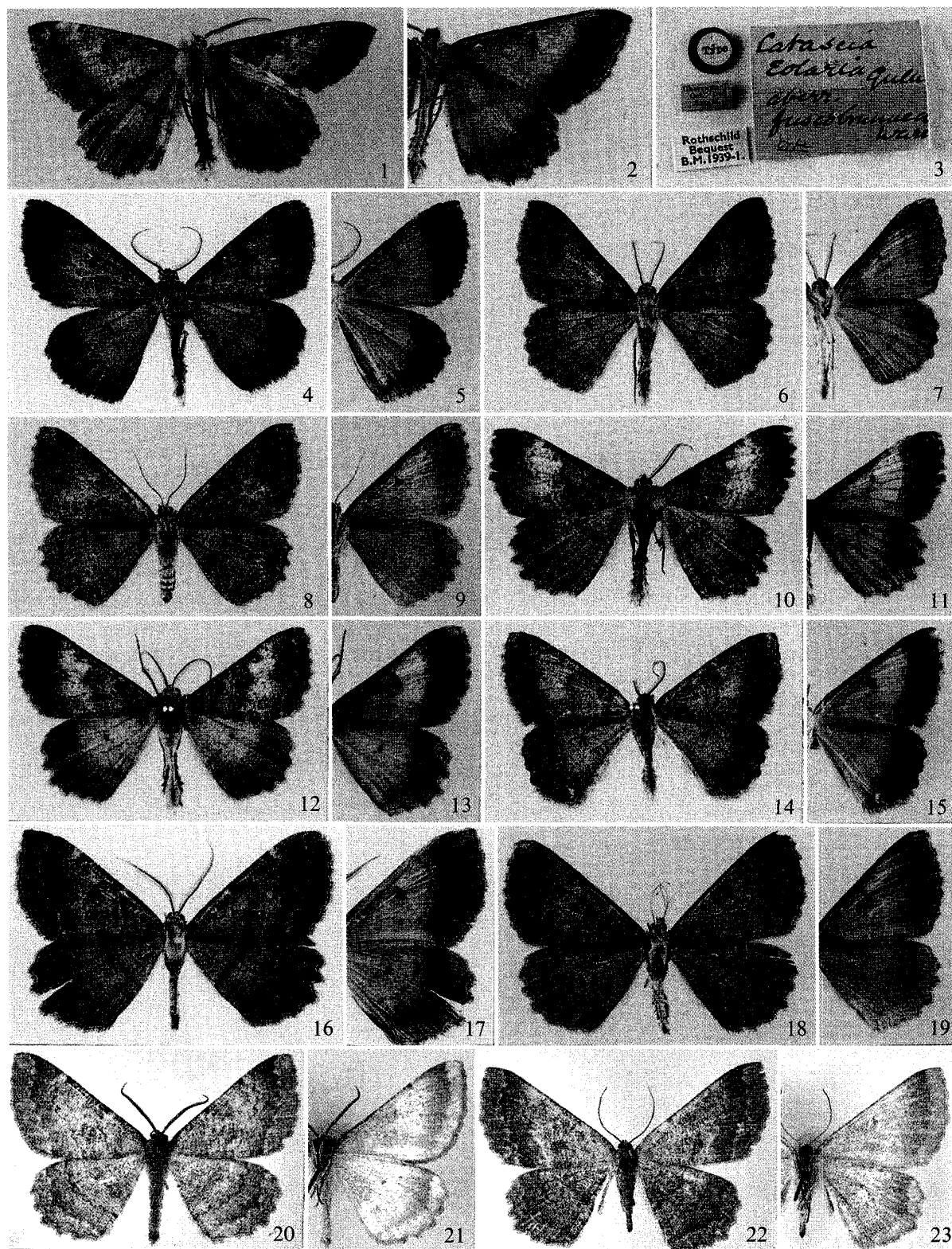
Gnophos (*Ctenognophos*) *eolaria* ab. *fuscobrunnea*: Prout, 1915: 384.

Ctenognophos eolaria ab. *fuscobrunnea*: Wehrli, 1953: 569.

Length of forewing 21–36 mm, wingspan 35–43 mm. Both wings variable in colour and maculation, especially on underside (Figs 5, 7 & 9). More similar to *obtectaria* (Figs 10–11) than to *eolaria* (Figs 1–2) in having wings without yellowish tint. Different from *obtectaria* in the following characteristics. Male antennal pectinations shorter. Both wings greyish brown, not tinged with purple or red; markings as well in *obtectaria*, but tending to be less defined.

Male genitalia (Fig. 24). Most similar to those of *eolaria* (Fig. 28) as follows. Left valva with an oblong mass of spines and right valva with several long spines, as in *eolaria*, but valva narrower, ventral spur longer, spines on left valva much shorter than in *eolaria*. Easily distinguished from those of *obtectaria* (Fig. 25) by a larger mass of spines on left valva.

Female genitalia (Fig. 29). Similar to those of *obtectaria* (Fig. 30), but a triangular



Figs 1-23. Type specimens of *Ctenognophos* spp. 1-2. Syntype of *Gnophos eolaria* Guenée, ♂. 3-9. *C. fuscobrunnea* sp. nov. 3-5. Holotype, ♂. 3: Labels. 6-9. Paratypes. 6-7: ♂. 8-9: ♀. 10-11. Syntype of *Gnophos obtectaria* Walker, ♂. 12-13. Syntype of *Gnophos incolar* Leech, ♂. 14-15. Syntype of *Gnophos? paerlita* Butler, ♂. 16-19. *C. yoshimotorum* sp. nov. 16-17. Holotype, ♂. 18-19. Paratype, ♀. 20-23. *C. altissimus* Herbulot. 20-21. Holotype, ♂. 22-23. Paratype, ♀.

pouch-like process from ostium bursae much larger, extending to the right. In *eolaria* (Fig. 31) and *paerlita* (Fig. 32), such a pouch is absent.

Holotype. ♂, "Type/*Catascia eolaria* Guen. aberr. *fuscobrunnea* Warr./Cherrapunji, Oct. 1893, Assam/Rothschild Bequest B. M. 1939-1/Geometridae genitalia slide No. 21319", BMNH. Paratypes. 26 ♂ 22 ♀. E. Nepal. 1 ♂, Kathmandu, Godavari 1,600 m, 14. iv. 1990, 1 ♂, *ditto*, 24. iv. 1990, 1 ♂, *ditto*, 29. iv. 1990, 1 ♂, *ditto*, 13. v. 1990, 1 ♂, *ditto*, 2. x. 1991, 2 ♂, *ditto*, 8-9. x. 1991, 1 ♂ 1 ♀, *ditto*, 26-27. iii. 1992, 1 ♀, *ditto*, 3. iv. 1992, 1 ♂, *ditto*, 20. iv. 1992, 1 ♀, *ditto*, 19. v. 1992, 1 ♂, Kathmandu, Mt Phulchouki 2,275 m, 19. vii. 1990 (T. Haruta), 1 ♂, Mechi, Godok 400 m, 21-22. iv. 1993 (M. S. Limbu), 1 ♂ 1 ♀, Sagarmatha, Okhaldhunga 1,800 m, 17-18. x. 1990 (K. Itoh). C. Nepal. 1 ♀, Gandaki, Kaski District, Pokhara 850 m, 25. iii. 1993, 2 ♀, *ditto*, 28-29. iii. 1993, 1 ♀, *ditto*, 14. iv. 1993, 1 ♀, *ditto*, 4. v. 1993, 1 ♂ 1 ♀, *ditto*, 4. vi. 1993, 3 ♂ 3 ♀, *ditto*, 4. vii. 1993, 1 ♂ 1 ♀, *ditto*, 4. viii. 1993 (T. Haruta). W. Nepal. 2 ♂ 1 ♀, Mahakali, Daldendhura 1,900 m, 3-5. iv. 1994, 1 ♀, *ditto*, 28. ix. 1994 (T. Haruta). E. Sikkim. 1 ♂, Dalapchand Arita 1,500 m, 27. iii. 1991, 1 ♀, *ditto*, 26. x. 1991, 1 ♂, *ditto*, 28. x. 1991, 1 ♀, *ditto*, 1. xi. 1991, 1 ♀, *ditto*, 12. xii. 1991, 1 ♂ 1 ♀, *ditto*, 9-11. iii. 1992, 1 ♂ 3 ♀, *ditto*, 19-21. iii. 1992, 1 ♂, *ditto*, 3. viii. 1992 (native collector), 1 ♂, Gangdok, 2. v. 1981 (Y. Kishida). N. India. 1 ♂, Darjeeling, Tiger Hill, vi-vii. 1976 (native collector). In NSMT & NIAES.

Geographical range. India (Assam, Sikkim), Nepal.

Catascia eolaria ab. *fuscobrunnea* Warren, 1896, is not available under the International Code of Zoological Nomenclature. I examined the Warren's "type specimen" (Figs 3-5) and its genitalia (No. 21319) preserved in BMNH, and here designated it as the holotype.

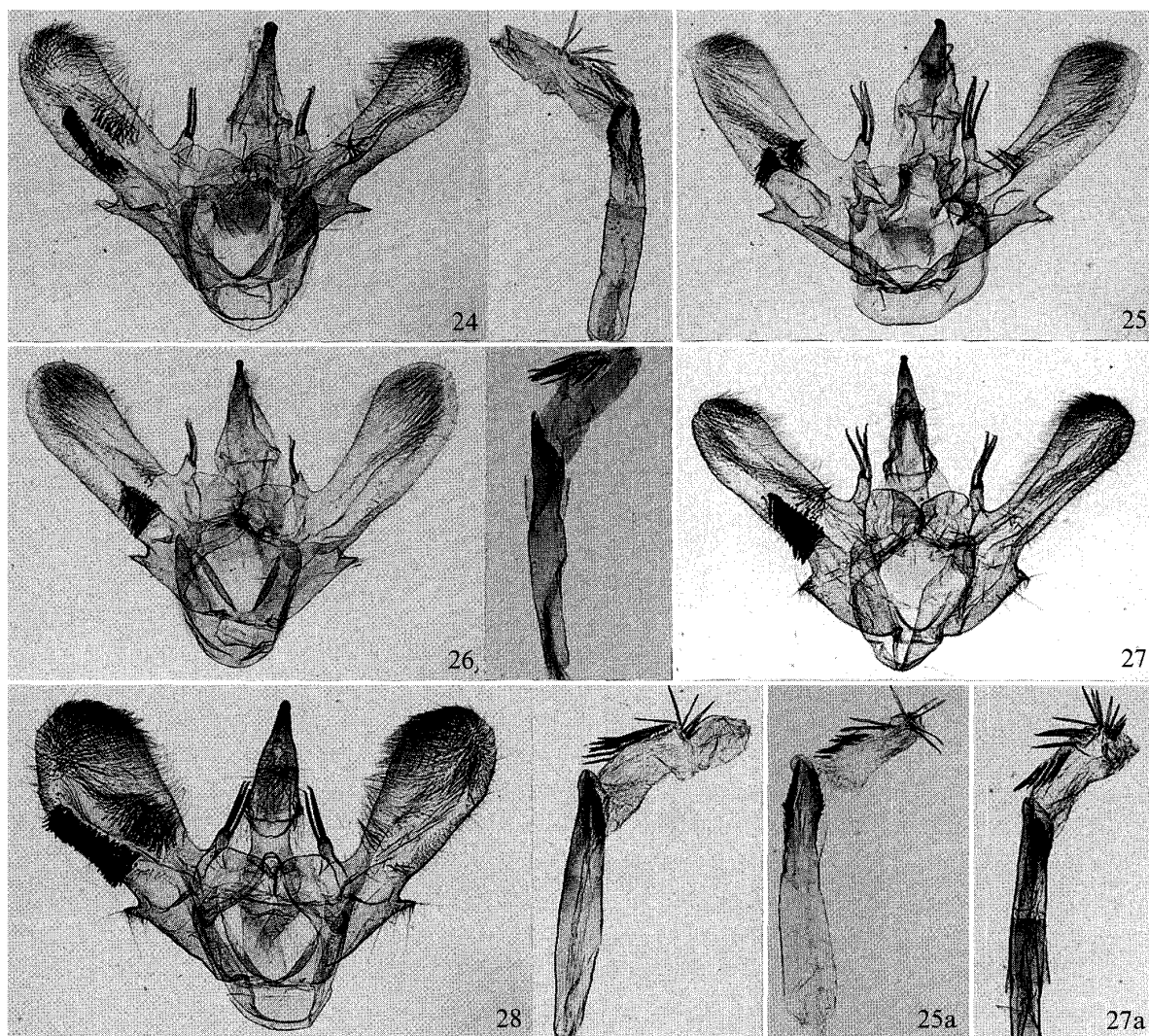
I also examined the following type and non-type specimens and their genitalia slides in BMNH to confirm the identification of this species.

Syntype of *Gnophos eolaria* Guenée. ♂ (Figs 1-2), "Inde north/Ex Typicalibus Speciminibus/Ex Musaeo, Ach Guenée/Ex Oberthür Coll. Brit. Mus. 1927-3/Geometridae genitalia slide No. 21320". Non-type female of *C. eolaria*, "Goorais Valley, Sept. 1887, J. H. Leech/Leech Coll. 1900-64/Geometridae genitalia slide No. 20299". Syntype of *Gnophos oblectaria* Walker. ♂ (Figs 10-11), "Type/Darjeeling, W. S. Atkinson/*Gnophos oblectaria*, type/Probably Moore Coll. 94-106/Geometridae genitalia slide No. 21314". Syntype of *Gnophos incolaria* Leech. ♂ (Figs 12-13), "Type/Kwei-chow, (Province), Native coll., June & July 1890/*Gnophos incolaria* Leech, type, ♂, AMNH (6) XIX. 330/Leech Coll. 1900-64/Geometridae genitalia slide No. 21316".

Ctenognophos yoshimotorum sp. nov. (Figs 16-19)

Length of forewing 22-25 mm, wingspan 35-45 mm. Most similar to *fuscobrunnea* in fuscous wings with obscure markings. Forewing a little more elongate with a larger discal spot; male hind tibia without hair-pencil, while in *fuscobrunnea* hind tibia with weak hair-pencil.

Male genitalia (Figs 27 & 27a). Most similar to those of *paerlita* (Fig. 26), but different from them as follows. Left valva with a mass of long spines of various lengths and right valva without a group of long spines, as in *paerlita*. Mass of spines



Figs 24-28. Male genitalia of *Ctenognophos* spp. 24. *C. fuscobrunnea* sp. nov. RS-4725. 25. *C. obtectaria* (Walker). RS-3879. 26. *C. paerlita* Butler. RS-4735. 27. *C. yoshimotorum* sp. nov. RS-4261. 28. *C. eolaria* (Guenée). RS-6258. a: aedeagus.

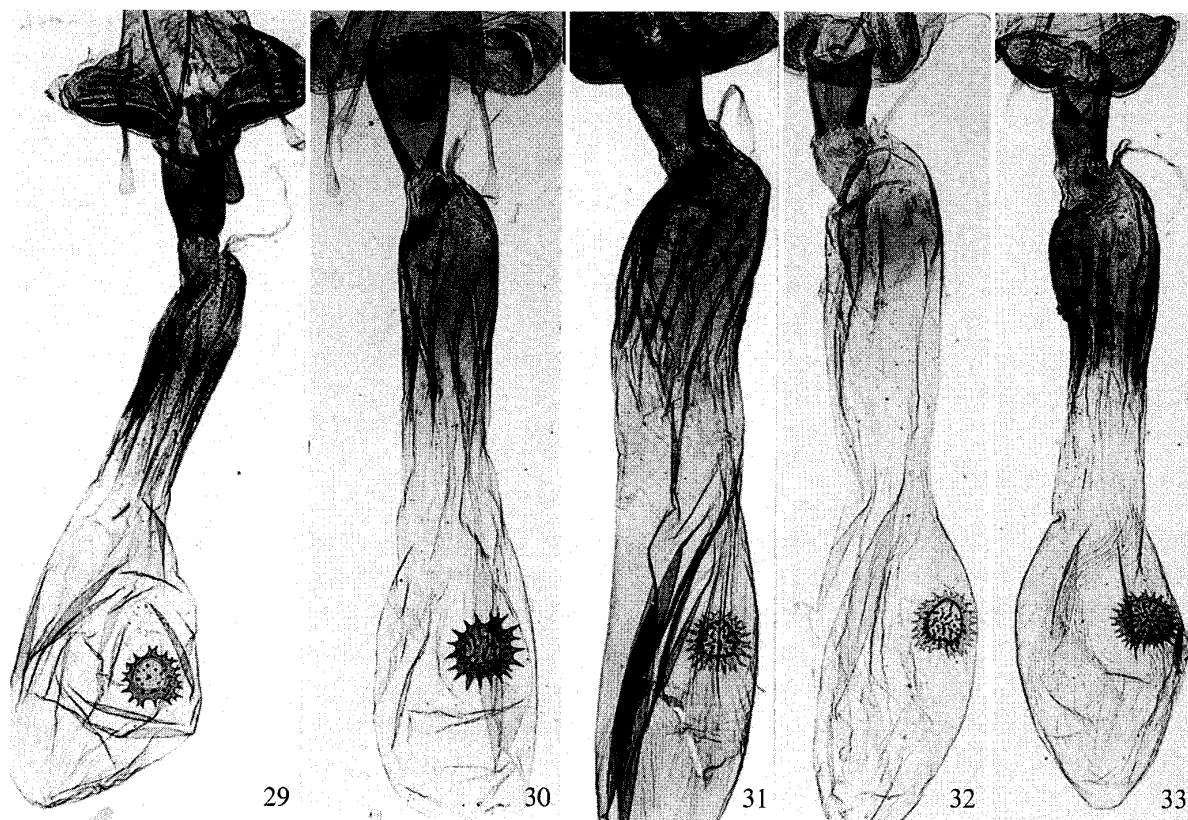
on left valva more developed, costal projection of valva longer, ventral spur of valva much shorter, spines on aedeagus vesica more in number (over twenty) than in *paerlita*.

Female genitalia (Fig. 33). Pouch-like process from ostium bursae much smaller than in *fuscobrunnea* (Fig. 29) and *obtectaria* (Fig. 30). Similar to those of *paerlita* (Fig. 32), but colliculum longer, sclerotized and ribbed part of bursa copulatrix longer.

Holotype. ♂, Kashmir, Naranag 2,500 m, Kangan-Wayul, 16-18. viii. 1982 (E. & H. Yoshimoto), NIAES. Paratypes. 2 ♂ 13 ♀. Kashmir. 1 ♂ 4 ♀, same data as holotype; 2 ♀, Rampora 2,000 m, Lolab Valley, 13. viii. 1982 (H. Yoshimoto); 1 ♀, Rampora-Dors, Lolab Valley, 12-15. viii. 1982 (E. Yoshimoto); 1 ♂ 6 ♀, Lidderwat 3,000 m, Pahalgam-Kolohoi, 8-9. viii. 1982 (E. & H. Yoshimoto). All the paratypes in NIAES.

Geographical range. Kashmir.

Ctenognophos altissimus Herbulot was described from Himachal Pradesh, N. India,



Figs 29–33. Female genitalia of *Ctenognophos* spp. 29. *C. fuscobrunnea* sp. nov. RS-5560. 30. *C. obtectaria* (Walker). RS-4734. 31. *C. eolaria* (Guenée). Geometridae genitalia slide No. 20299, BMNH. 32. *C. paerlita* Butler. RS-4733. 33. *C. yoshimotorum* sp. nov. RS-4731.

based on a pair of specimens, by Herbulot (1995: 22). I examined the digital images of the holotype male and the paratype female preserved in ZSM through the courtesy of Dr Hausmann, to compare them with my specimens from Kashmir. As the result I found this new species easily distinguished from *altissimus* (Figs 20–23) by wing colour.

Holotype, ♂, “*Ctenognophos altissimus* Hrblt, HOLOTYPE/46 INDIEN, Himachal Pradesh, Spiti, Spiti Valley, 7 km SE Kaza, 4,150 m, 3. 8. 94, leg. P. Kautt & V. Weisz”, ZSM. Paratype, ♀, same data as holotype, ZSM.

Etymology I take pleasure in naming this species after Mr Hiroshi Yoshimoto and Mrs Emiko Yoshimoto, who collected all the type specimens and donated them to me.

***Ctenognophos paerlita* (Butler) (Figs 14–15)**

Gnophos? paerlita Butler, 1886, *Proc. zool. Soc. Lond.* **1886** (3): 389.

Gnophos (*Ctenognophos*) *eolaria* ab. *paerlita*: Prout, 1915: 384.

Ctenognophos eolaria ab. *paerlita*: Wehrli, 1953: 569.

Ctenognophos paerlita: Parsons *et al.*, 1999: 200.

This species was described from Western India [Pakistan] on the specimens taken at Kala Pani, between Thulianai and Abbottabad (6,000 ft?) (Parsons *et al.*, 1999). Here

I record two pairs from Nepal and one male from Kashmir in the following. Male and female genitalia are illustrated as in Figs 26 & 32.

Specimens examined. 2 ♂ 1 ♀, W. Nepal, Mahakali, Daldendhura 1,900 m, 3-5. iv. 1994 (T. Haruta), 1 ♀, *ditto*, 28. ix. 1994 (T. Haruta), NSMT. 1 ♂, Kashmir, Dors 1,000 m, Lolab Valley, 14. viii. 1982 (H. Yoshimoto), NIAES.

Type material examined. Syntype of *Gnophos? paerlita* Butler. ♂ (Figs 14-15), "Type/*Gnophos paerlita* Butler, type/Kala Pani, 86/54, (49), 24.9.83/Geometridae genitalia slide No. 21315", BMNH. I also examined the following female (non-type) and its genitalia. ♀, "Simla, 4.97/Joicey Bequest, Brit. Mus. 1934-12./Geometridae genitalia slide No. 21318", BMNH.

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I would like to express my cordial thanks to Mr D. Carter (BMNH) and Mr G. Martin (BMNH), for their permission to study specimens under their care. I deeply thank Dr A. Hausmann (ZSM) for providing me with digitalized photographs of the type specimens of *C. altissimus* Herbulot and Dr H. Inoue, Iruma, for his critical reading through the original manuscript. My thanks are also due to the late Mr T. Haruta, Mr H. Yoshimoto, Mrs E. Yoshimoto and Mr Y. Kishida, for their kindness in offering me valuable specimens.

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摘 要

ヒマラヤ産 *Ctenognophos* 属 (シャクガ科エダシャク亜科) の2新種 (佐藤力夫)

Ctenognophos eolaria (Guenée) (属のタイプ種) に近縁の2種を新種として記載するとともに, *C. paerlita* (Butler) を Nepal から初めて記録した. また, 同定確認のために調査した5種のタイプ標本を図示した.

C. fuscobrunnea Sato

Warren (1896) によって, *Catascia eolaria* ab. *fuscobrunnea* として記載されたが, 国際動物命名規約 (条 45.6.2) により無効である. あらためて, Warren の記載の基になった Assam 産の♂をホロタイプに指定し, 新種として記載した. India (Assam, Sikkim) と Nepal に分布.

C. yoshimotorum Sato

吉本浩・恵美子夫妻によって 1982 年 8 月に採集された標本に基づいて記載した. Kashmir に分布.

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